

LEIOMYOMA OF URINARY BLADDER WITH LOWER URINARY TRACT SYMPTOMS IN A FEMALE PATIENT

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ABSTRACT

Bladder leiomyomas are rare tumors accounting for 0.43% of all bladder tumors and 35% of benign mesenchymal bladder tumors. Here, we present the case of a 37-year-old woman who was previously diagnosed with bladder leiomyoma proven on histopathology and was treated with trans urethral resection (TURBT) five times. On this occasion the patient presenting complaints were lower urinary tract symptoms such as incomplete bladder emptying, urinary urgency, urinary frequency, and hematuria. An Ultrasound scan of abdomen pelvis was performed which showed a mass in urinary bladder wall. Subsequent magnetic resonance imaging (MRI) and abdominal computed tomography (CT scan) were also performed. After confirmation, cystoscopy was done and the patient underwent transvesical resection of the bladder mass through a Pfannenstiel incision. During surgery, a single large bladder tumor was removed. This is the standard management approach for this condition. The patient underwent successful surgery, had symptom relief, and no recurrence during follow-up of 6 months.

Keywords: (Leiomyoma, Mesenchymal Bladder Tumor, Lower urinary tract symptoms, Surgical resection)

INTRODUCTION

Leiomyoma is a term used to describe a non-cancerous growth of smooth muscle tissue. These growths can develop in various parts of the body where smooth muscle is present, but they are most commonly found in the uterus (referred to as fibroids) or the gastrointestinal tract. Bladder leiomyoma, on the other hand, is a rare benign tumor that accounts for approximately 0.43% of all bladder tumors. There have been around 250 reported cases in English literature so far, with some cases involving leiomyoma in the urethra. In some instances, bladder leiomyomas are incidentally discovered, leading to a range of clinical symptoms such as obstructive lower urinary tract symptoms, irritative symptoms, hematuria, and dysuria. Treatment typically involves surgery, with the specific approach depending on factors such as tumor size and location within the bladder wall. While smaller and easily accessible tumors can be managed with transurethral resection of the bladder tumor, more challenging cases may require segmental resection or laparoscopic partial cystectomy. Here we report a case of recurrent urinary bladder leiomyoma in a 37-year-old female who previously underwent five times TURBT now presented with complaints of lower urinary tract symptoms like incomplete bladder emptying, urinary urgency, urinary frequency, and hematuria. To the best of our knowledge this is one among the rare cases of bladder leiomyoma who presented with an enlarged mass and re-currence after multiple TURBTs. Our main concern was to remove the tumor tissue completely and relieve the patient symptoms.

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CASE PRESENTATION

A 37-year-old female presented to our out-patient-department (OPD) with complaints of occasional painless hematuria and obstructive and irritative symptoms with 1 year history of bladder leiomyoma confirmed on histopathology and 5 times TURBTs done previously for tumor resection. However, now she reported that from last 1 month she experienced severe hematuria due to the expulsion of a blood clot with incomplete bladder emptying and irritative lower urinary tract symptoms. Keeping in mind her past history, ultrasound abdomen pelvis was done which showed a huge mass in urinary bladder wall. Further more her MRI abdomen Pelvis and CT-scan with contrast was done which showed a large mass in urinary bladder. Cystoscopy was performed, sample was taken and was sent for Histopathology which later on confirmed the diagnosis of urinary bladder leiomyoma (re-currence). This time it was planned to be removed by open incision. After all pre-operative workup and informed consent, patient was planned to be shifted to operation theater for removal of urinary bladder leiomyoma.

INVESTIGATION

Leiomyomas can be identified before surgery using radiographic imaging techniques. Ultrasound imaging is particularly helpful in determining whether a lesion is solid or cystic, with solid, smooth-walled lesions having a uniform echo. In addition, ultrasound helps to delineate the boundaries between the tumor and surrounding structures and accurately determine the location of the tumor within the bladder wall. Transvaginal ultrasound is a very effective diagnostic tool for subserosal tumors of the posterior wall of the bladder in women. Computed tomography (with or without contrast) provides valuable information regarding the size, location, and relationship of the tumor to the bladder wall, with cystic components indicating degeneration or necrosis. Magnetic resonance imaging (MRI) surpasses CT in characterization and provides a clearer picture of the submucosal origin and muscle preservation of leiomyomas.

DIFFERENTIAL DIAGNOSIS

- Transitional Cell Carcinoma of Urinary Bladder
- Squamous Cell Carcinoma of Urinary Bladder

- Urinary Tract Infection and Cystitis
- Hemorrhagic Cystitis
- Nephrolithiasis
- Renal Transitional Cell Carcinoma
- High Grade Urothelial Carcinoma

TREATMENT

She had no known comorbidities, and both clinical and laboratory findings were within normal limits. Her urine test revealed 20-25 white blood cells and over 60 red blood cells per high power field. Ultrasound of the kidneys, ureters, and bladder (USG KUB) revealed large intravesical mass measuring 10.5 cm x 10.5 cm x 3.0 cm extending from the bladder neck to the left side wall. On scans, both kidneys appeared normal. Abdominal Contrast-enhanced scan (CT scan) shown in Figure 1, confirmed the presence of a soft tissue mass measuring 10.5 cm x 10.5 cm x 3.0 cm with regular borders starting at the bladder neck and extending into the left side wall and lumen. Magnetic resonance imaging (MRI) of the pelvis, shown in Figure 3A-3B, a well-defined intravesical mass in the bladder originating from the neck area and extending to the left wall. As she underwent multiple times TURBT previously for tumor resection and also due to the difficulty of identifying the base and edges of the mass during cystoscopy and determining its benign nature, the decision was made to proceed with open transvesical resection via Pfannenstiel incision. Intraoperatively, a gray-white, well-encapsulated papillary solid mass shown in Figure 2 was found in the bladder neck, extending to the left side wall, measuring 10.5 cm x 10.5 cm x 3.0 cm, and weighing approximately 900 g. Histopathological examination of the sections shown in Figure 4, revealed fragments covered with stratified squamous epithelium with surface ablation artifacts and proved to be bladder leiomyoma. Mild spindle cells arranged in fascicles were observed, with no evidence of granulomas or malignancy. 6 months post surgery, an ultrasound scan showed no recurrence of the tumor. When treating bladder leiomyomas, the choice of treatment depends on the size and location of the tumor. In general, small intravesical leiomyomas can be successfully treated by transurethral resection of bladder tumor (TURBT). On the other hand, for larger intramural or extravesical leiomyomas, open resection may be necessary.

OUTCOME AND FOLLOW UP

The patient remained admitted in hospital for 5 days. Following surgery, strict vitals monitoring was done with daily dressing of wound and intake/output charting. Also, patient remained catheterized and was assessed 12 hourly till day of discharge for any active bleed or hematuria. Later on, patient was discharged and catheter was removed on 5th post-operative day and was advised to follow-up after 4

weeks for up to 6 months. The patient returned to normal daily life without active symptoms and was asymptomatic at follow-up, with no complaints of lower urinary tract symptoms till date.

DISCUSSION

Bladder leiomyomas are rare benign mesenchymal/soft tissue tumors of the bladder with an incidence of less than 0.5% for all types of bladder tumors. This was first reported and explained in 1931^[4]. The etiology of leiomyomas in the bladder is still unknown, and several theories have attempted to explain their origin. Leiomyomas have various causes, including chromosomal abnormalities, bladder smooth muscle infections, hormonal changes, perivascular inflammation, and dissonance^[5]. Macroscopically, it is a round or oval tumor with an elastic consistency and irregular surface. Size varies, with tumor sizes up to 30 cm reported, particularly in extravesical locations. Bladder leiomyomas are known to cause symptoms that depend primarily on their location and, secondly, on their size. They are known to occur intravesically, intramurally, and extravesically, with frequencies of 63%, 7%, and 30%, respectively. Of these types, intravesical more commonly causes obstructive or irritating urinary symptoms^[6, 10, 11, 12, 13]. Ultrasound, MRI, and cystoscopy are valuable diagnostic tools that can demonstrate the morphology and anatomical location of leiomyomas. MRI is particularly useful. Non-degenerative leiomyomas are typically depicted as hypointense masses on both T1- and T2-weighted sequences with a smooth surface on MRI, whereas degenerative leiomyomas show heterogeneous signal intensity^[8, 10, 11]. A different pattern of enhancement is observed after gadolinium injection. Some leiomyomas uniformly enhance, while others do not^[7, 9, 10]. Bladder leiomyoma was treated by surgical resection. The size, extent, and location of the tumor as well as sphincter and ureteral involvement determine the route of resection. Small intravesical tumor scans can be treated with TUR and radiofrequency therapy. Partial resection is the treatment of choice for larger intravesical, intramural, or extravesical tumors. TUR, partial cystectomy or partial cystectomy, transvaginal resection, laparoscopic partial cystectomy, and more recently robot-assisted laparoscopic resection have all been used successfully to remove bladder leiomyomas.^[3, 10, 11]

LEARNING POINTS

- Hematuria and lower urinary tract symptoms with discharge of blood clots may be symptoms of a benign bladder tumor.
- Diagnosis of leiomyomas can be made using imaging techniques.
- Surgical resection provides better results in the treatment of bladder leiomyomas.

FIGURES

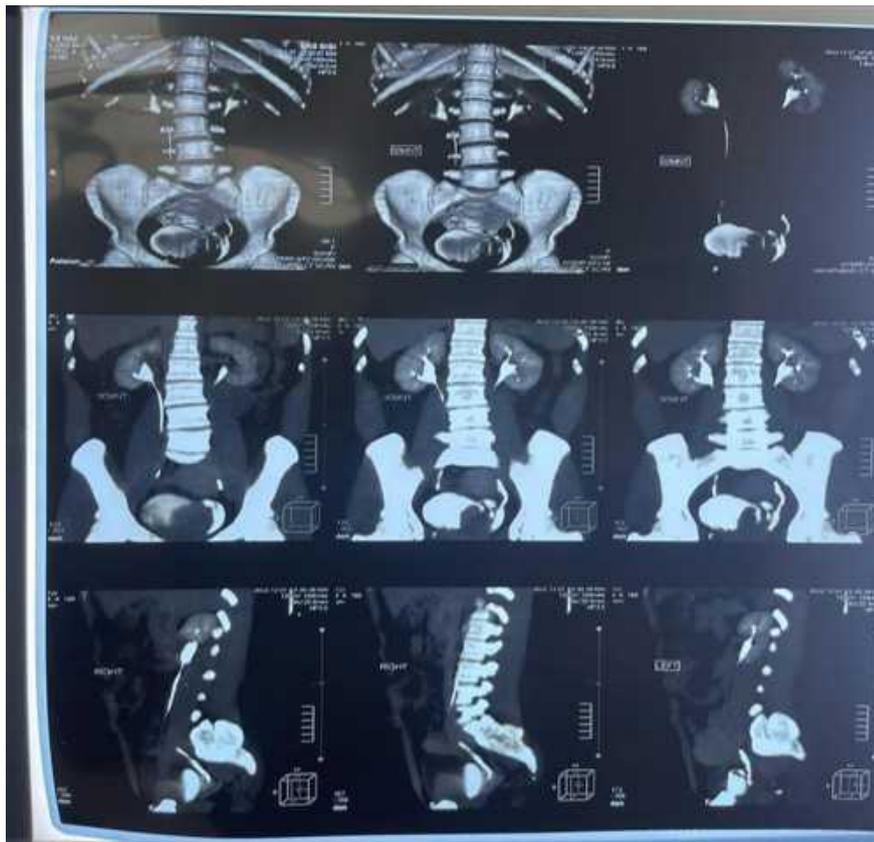


Figure 1. CT KUB showing endovesical urinary bladder mass with regular border



Figure 2. Specimen of Urinary Bladder mass after resection

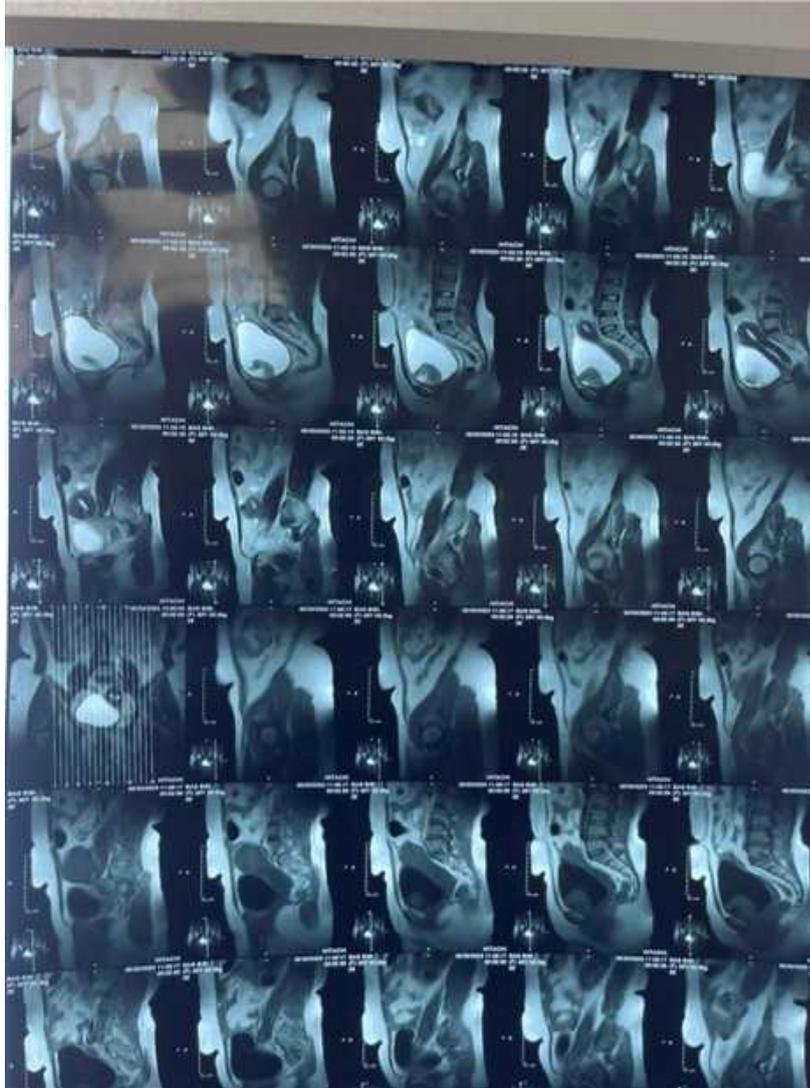


Figure 3A. Magnetic Resonance Imaging (MRI) of the pelvis showing endovesical urinary bladder mass

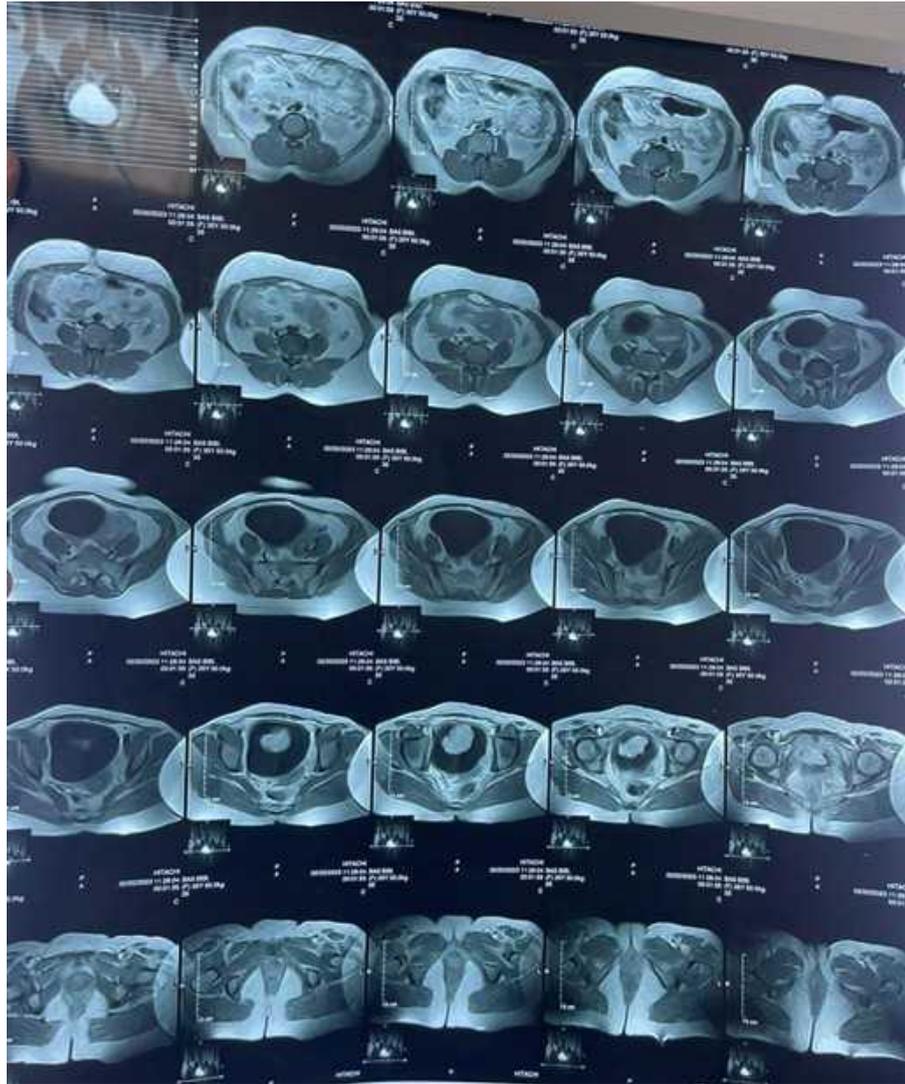


Figure 3B. Magnetic Resonance Imaging (MRI) of the pelvis showing endovesical urinary bladder mass

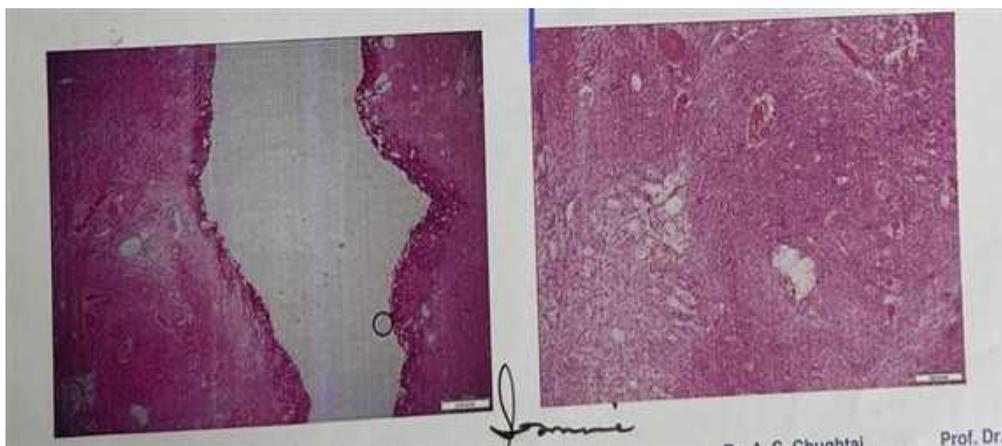


Figure 4. Histology fragment reveals spindle shape cells arrange in fascicles.

DECLARATIONS

Patient consent for use of data for publication:

I ABC resident of Sawabi hereby consent to publish my particulars for research purposes and I do not have any objection.

Sign and Signature:



Patient name was not disclosed as per her request and for privacy purpose.

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